UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/325,110	06/03/1999	CARL S. ANSELMO	PD-990033	2415

20991 7590 04/07/2004

THE DIRECTV GROUP INC
PATENT DOCKET ADMINISTRATION RE/R11/A109
P O BOX 956
EL SEGUNDO, CA 90245-0956

EXAMINER	
CHOW, CHARLES CHIANG	
ART UNIT	**PAPER NUMBER**
2685	19

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 09/325,110	Applicant(s) ANSELMO, CARL S.	
	Examiner Charles Chow	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/20/2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10-13 and 15-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-13 and 15-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *18; 1/28/04*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Office Action for Amendment
Received on 1/21/2004

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 3-7, 10-13, 15-17, 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson et al. (US 2001/0034,206 A1) in view Brown et al. (US 6,157,621).

Regarding **claim 1**, Thompson et al. (also as Thompson in below) teaches a system [0012] for providing high frequency data communications (using Ku band antenna in [0016-0017]), plurality of communication satellites [0002], each having uplink and downlink antenna for receiving and transmitting plurality signals (two c-band and four ku-band antenna [0032], the uplink and downlink for reconfigurable payload satellite [0033]). Thompson teaches the communication control circuit (as shown in Fig. 3-4, [0040-0042]; Fig. 8, [0053-0054]). Thompson teaches the reconfigurable satellite (abstract, his claims 1, 7, 8, 11-16) having programmable frequency synthesizer couple to the control circuit (synthesizers 26, 28, [0047]; the control circuit of switches s1, s2 in [0039], the switching system in [0052]). Besides, Thompson teaches input multiplex IMUX and output multiplex OMUX [0011, 0049-0050]. Thompson does not clearly teach the controller located on the satellite, and a routing table storing tuning information. Brown et al. (also as Brown in below) teaches the controller 1102 (fig. 83) on board of a satellite for controlling communication (as shown in

col. 45, lines 31-36). Brown teaches the routing table having the synthesizer tuning information; the on-board computer (adaptive routing processor) for a satellite communication apparatus and system for handling large capacity (abstract, figure in cover page, summary of invention). Brown teaches in Fig. 37, the routing information is stored in the cache memory 420. In Fig. 85, 86, Brown considered the utilization of the routing table 1120 for the routers. In Fig. 27, 28 Brown considered the synthesizer 284, 308, in the reconfiguring circuit, for tuning to the frequency according to the routing table above. Brown considered the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information to change the synthesizer frequency tuning, as shown above, such that the route could be the best path. Brown teaches the solution to select the best route path utilizing the route table information to change the synthesizer frequency tuning. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Thompson and to include Brown's solution, such that the best route path could be selected.

Regarding the routing table having tuning information to control the frequency reconfiguration of the control circuit through the synthesizer, Brown teaches the routing switch 1302 carries a channel designation 1306 that specifies time slot, frequency, coding scheme for routing packet data, and the transmitter 1310 determines the frequency to be used for transmission of packet data based on the selected channel (col. 10, lines 33-38). Brown teaches the synthesizer 284, 308 (Fig. 28), 1310 determines the frequency to be used for

transmission of packet data based on the selected channel (col. 10, lines 33-38). Brown teaches the synthesizer 284, 308 (Fig. 28), 1032 (Fig. 81) and routing table 1120 (Fig. 86). Brown teaches the assigning of different channels for fixed terminal/satellite link which is different from the mobile terminal/satellite link (col. 35, lines 23-31). Thompson teaches in [0029] a reconfigurable satellite with broadband flexible antenna coverage necessary in a reconfiguration spacecraft, for receiving and transmitting any of the desired uplink and downlink frequencies. Thompson teaches the synthesizer frequency tuning [0046-0047] for mapping uplink frequencies to the downlink frequencies in order to be reconfigurable to provide services to various customers for various frequency plans [0006-0007] by utilizing three technologies [0008], the variable down converter with various frequency selection [0010], the selectable uplink and downlink frequency plan of the routing table [0014].

Regarding **claim 3**, referring to Thompson above for the up converter and down converter for the communication control circuit [0035].

Regarding **claim 4**, referring Thompson above for a transponder (repeater in [0053],Fig. 7-8) for the circuit for receiving uplink signal and transmitting downlink signal [0047].

Regarding **claim 5,** referring to Thompson above [0035, 0047, fig. 7-8] for the transponder and the up converter and down converter.

Regarding **claim 6**, Brown has taught above for the time division multiple access switch (col. 61, lines 24-31).

Regarding **claim 7**, referring to Brown above for the packet switch 1306 (Fig. 112A; col. 60, line 65 to col. 61, line 11).

Regarding **claim 15**, Thompson teaches in above the reconfigurable satellite payload circuit having receiving array/transmitting array (Fig. 8, receiving antenna ports, transmitting antenna ports). Thompson teaches the beam forming network [0054, the network 34 combines received beams in any desired combination for flexible antenna coverage, for down link], the programmable synthesizer.

Thompson does not clearly teach the controller located on the satellite, and a routing table storing tuning information. Brown teaches the controller 1102 (Fig. 83) on board of a satellite for controlling communication (as shown in col. 45, lines 31-36). Brown teaches the routing table having the synthesizer tuning information, the on-board computer (adaptive routing processor) for a satellite communication apparatus and system for handling large capacity (abstract, figure in cover page, summary of invention), the handling large capacity (abstract, figure in cover page, summary of invention). Brown teaches in Fig. 37, the routing information is stored in the cache memory 420. In Fig. 85, 86, Brown considered the utilization of the routing table 1120 for the routers. Brown considered the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information to change the synthesizer frequency tuning, as shown above, such that the route could be the best path. Brown teaches the solution to select the best route path utilizing the route table information to change the synthesizer frequency tuning. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Thompson

and to include Brown's routing table for best routing path, such that the best routing path could be efficiently selected.

Regarding applicant's argument for the no teachings for the routing table having tuning information to control the frequency reconfiguration of the control circuit through the synthesizer, Brown teaches the routing switch 1302 carries a channel designation 1306 that specifies time slot, frequency, coding scheme for routing packet data, and the transmitter 1310 determines the frequency to be used for transmission of packet data based on the selected channel (col. 10, lines 33-38). Brown teaches the synthesizer 284, 308 (Fig. 28), 1032 (Fig. 81) and routing table 1120 (Fig. 86). Brown teaches the assigning of different channels for fixed terminal/satellite link which is different from the mobile terminal/satellite link (col. 35, lines 23-31). Thompson teaches in [0029] a reconfigurable satellite with broadband flexible antenna coverage necessary in a reconfiguration spacecraft, for receiving and transmitting any of the desired uplink and downlink frequencies. Thompson teaches the synthesizer frequency tuning [0046-0047] for mapping uplink frequencies to the downlink frequencies in order to be reconfigurable to provide services to various customers for various frequency plans [0006-0007] by utilizing three technologies [0008], the variable down converter with various frequency selection [0010], the selectable uplink and downlink frequency plan of the routing table [0014].

Regarding **claim 16**, refer to Brown in claim 6 above for the time multiple access switch.

Regarding **claim 17**, refer to Brown in claim 7 for the packet switch.

Regarding **claim 28**, Thompson has taught above for a method of reconfiguring a satellite

from a operator's control for communicating with satellite for reconfiguration of the satellite payload , and the programmable synthesizer having the frequency tuning information ([0005-0006]). Thompson does not clearly teach the routing table. Brown teaches the routing table above, having the synthesizer tuning information; the on-board computer(adaptive routing processor) for a satellite communication apparatus and system for handling large capacity (abstract, figure in cover page, summary of invention). In Fig. 37, the routing information is stored in the cache memory 420. In Fig. 85, 86, Brown considered the utilization of the routing table 1120 for the routers. In Fig. 27, 28 Brown considered the synthesizer 284, 308, in the reconfiguring circuit, for tuning to the frequency according to the routing table above. Brown considered the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown teaches the solution for selecting of the best routing path utilizing the route table information to change the synthesizer frequency tuning, as shown above, such that the route could be the best path. Brown teaches a solution to select the best route path utilizing the route table information to change the synthesizer frequency tuning. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Thompson and including Brown's routing table, best routing path, such that the best routing path could be efficiently selected.

Regarding the reconfiguring the frequency configuration of the payload of the reconfigurable satellite in response to the tuning information in a routing table, Thompson teaches in [0029] a reconfigurable satellite with broadband flexible antenna coverage necessary in a

reconfiguration spacecraft, for receiving and transmitting any of the desired uplink and downlink frequencies. Thompson teaches the synthesizer frequency tuning [0046-0047] for mapping uplink frequencies to the downlink frequencies in order to be reconfigurable to provide services to various customers for various frequency plans [0006-0007] by utilizing three technologies [0008], the variable down converter with various frequency selection [0010], the selectable uplink and downlink frequency plan of the routing table [0014].

Regarding **claim 29**, referring to Brown above in claim for the amplitude or phase changing due to tuning.

Regarding **claims 30, 31,** referring to claim 1 above Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing table from order wire, from RF control channel (col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20).

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view of Brown, and further in view of Wiswell et al. (US 6,205,319 B1).

In the above, it does not teach the beam forming network.

Regarding **claim 2**, Wiswell et al. (also as Wiswell in below) teaches, the comprising a beam forming network coupled to uplink and downlink antenna (front figure, the receive/transmit beam phased array 102-108, 120-126; up/down converter 110) for the selectively adjusting of the amplitude and phase antenna beam for receiving/transmitting information (abstract, col. 1, lines 5-9; col. 2, lines 27-30), using ewer multi-beam antennas (col. 1, line 65 to col. 2,

line 2; col. 2, lines 8-15), such that the satellite can reduce the payload complexity, and the power requirement using fewer beam antennas. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Thompson above and to include Wiswell's fewer beam phased array antennas for receiving and transmitting, such that the satellite payload would be efficient, with less complexity and save power requirement.

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view Brown, and further in view of Galvin (US 6,182,927 B1).

In the above, it does not include the satellites for LEO, MEO, GSO
Galvin teaches, **claim 8**, the satellites for LEO, MEO, GSO (col. 6, lines 34-54, the low earth orbit satellites 50, GEO 52, the MEOs in Fig 6) for improving the satellite navigation accuracy (col. 2, line 47). Galvin teaches the efficient method to add the augmentation satellites in LEO, or MEO or GEO, the navigation accuracy could be improved (col. 6, lines 34-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Thompson above and to include Galvin's adding different augmentation satellites, such that the system could be provide the navigation accuracy.

4. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view of Reesor (US 4, 472,720).

Regarding **claim 18,** Thompson has taught above a method for configuring a satellite having plurality of satellites and the deploying the back up satellite from the communication control from the operator instruction for flexibly reconfiguring of a satellite, with the programmable synthesizer. Thompson does not clearly teaches the repositioning a satellite, However, Reesor teaches the repositioning a satellite from a network and moving the reconfigurable satellite into the network position (repositioning of the satellite based upon the phase error detected from the tone transmitted from the master satellite to the slaved satellites, abstract, front figure, Reesor's claim 2, repositioning satellites determined by correction signal). To synchronize the phase of the received signal to improve the signal quality is obviously a essential features to be included, such that the phase error could be reduced by repositioning the satellites. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Thompson above and to include Reesor's repositioning, reconfiguring the positions of satellites, such that the phase error could be reduced.

Regarding the reconfiguring the frequency configuration of the payload of the reconfigurable satellite in response to the tuning information in a routing table, Thompson teaches in [0029] a reconfigurable satellite with broadband flexible antenna coverage necessary in a reconfiguration spacecraft, for receiving and transmitting any of the desired uplink and downlink frequencies. Thompson teaches the synthesizer frequency tuning [0046-0047] for mapping uplink frequencies to the downlink frequencies in order to be reconfigurable to provide services to various customers for various frequency plans [0006-0007] by utilizing three technologies [0008], the variable down converter with various frequency selection [0010], the selectable uplink and downlink frequency plan of the routing table [0014].

Regarding **claim 19**, refer to Thompson above in claim 1, for the changing of the up/down frequency of the up/down converters for the repeater.

Regarding **claim 20**, refer to Thompson in claim 1 above, which also provides the claimed features for the changing of the frequency in a programmable synthesizer.

5. Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson in view of Reesor, and further in view of Brown-'621.

Regarding **claim 21**, Brown has taught above the steering antenna and phase shift (col. 14, line 51 to col. 15, line 5) and the beam forming 554/568, beam compensation (Fig. 42, col. 19, lines 15-40).

Regarding **claim 22**, Brown has taught above in claim 1 for the tuning information in the route table.

Regarding **claim 23**, Brown has taught above for the steering antenna, phase shift, the beam compensation for the changing of amplitude or phase of a beam, and Brown has taught above the tuning information in the route table.

Regarding **claims 24, 25**, referring to Brown in claim 1 above for the maintaining of the spacecraft's orientation for the east/west, north/south station keeping (col. 30, lines 7-20);

Regarding **claims 26, 27**, referring to claim 1 above Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing table from order wire, from RF control channel (col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20).

Response to Argument

6. Applicant's arguments filed 1/21/2004 have been fully considered but they are not persuasive.

Regarding applicant's argument for the no teachings for the routing table having tuning information to control the frequency reconfiguration of the control circuit through the synthesizer, Brown teaches the routing switch 1302 carries a channel designation 1306 that specifies time slot, frequency, coding scheme for routing packet data, and the transmitter 1310 determines the frequency to be used for transmission of packet data based on the selected channel (col. 10, lines 33-38). Brown teaches the synthesizer 284, 308 (Fig. 28), 1032 (Fig. 81) and routing table 1120 (Fig. 86). Brown teaches the assigning of different channels for fixed terminal/satellite link which is different from the mobile terminal/satellite link (col. 35, lines 23-31). Thompson teaches in [0029] a reconfigurable satellite with broadband flexible antenna coverage necessary in a reconfiguration spacecraft, for receiving and transmitting any of the desired uplink and downlink frequencies. Thompson teaches the synthesizer frequency tuning [0046-0047] for mapping uplink frequencies to the downlink frequencies in order to be reconfigurable to provide services to various customers for various frequency plans [0006-0007] by utilizing three technologies [0008], the variable down converter with various frequency selection [0010], the selectable uplink and downlink frequency plan of the routing table [0014].

In view of the above disclosures, claims 1-8, 10-13, 15-31 are remaining in the rejection ~~manner.~~

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)-305-4385.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow C.C.

March 19, 2004.

EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600